Banaras Hindu University  
Institute of Science, Department of Geography  
Ph.D. Two-Semester Course Outline, 2019-20

Semester-I

A. Common Course (Institute level)

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title of the paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ScP-01</td>
<td>Ethics, Concept and Significance of Research</td>
<td>3</td>
</tr>
<tr>
<td>ScP-02</td>
<td>Methods of Research and Good Laboratory Practices</td>
<td></td>
</tr>
<tr>
<td>ScP-03</td>
<td>Science Communication</td>
<td></td>
</tr>
</tbody>
</table>

B. Department Specific Course

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title of the paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP-101</td>
<td>Theory: Orientation in Geographical Research</td>
<td>4</td>
</tr>
<tr>
<td>GRP-102</td>
<td>Practical: Research Tools and Techniques</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

Semester-II

Compulsory Papers

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title of the paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP-201</td>
<td>Theory: Data Analysis and Synthesis</td>
<td>2</td>
</tr>
<tr>
<td>GRP-202</td>
<td>Practical: Research Proposal</td>
<td>2</td>
</tr>
</tbody>
</table>

Research Scholar will select any TWO from the following research theme specific OPTIONAL papers with consultation of RPC:

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title of the paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP-203</td>
<td>Applied Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GRP-204</td>
<td>Applied Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>GRP-205</td>
<td>Environmental Planning and Management</td>
<td>3</td>
</tr>
<tr>
<td>GRP-206</td>
<td>Remote Sensing &amp; GIS in Geographical Research</td>
<td>3</td>
</tr>
<tr>
<td>GRP-207</td>
<td>Population Dynamics and Policies</td>
<td>3</td>
</tr>
<tr>
<td>GRP-208</td>
<td>Health, Space and Ecology</td>
<td>3</td>
</tr>
<tr>
<td>GRP-209</td>
<td>Rural Planning and Development</td>
<td>3</td>
</tr>
<tr>
<td>GRP-210</td>
<td>Urban Planning and Governance</td>
<td>3</td>
</tr>
<tr>
<td>GRP-211</td>
<td>Peri-Urban Interface and its Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>GRP-212</td>
<td>Globalisation and Regional Development</td>
<td>3</td>
</tr>
<tr>
<td>GRP-213</td>
<td>Heritage conservation and Tourism</td>
<td>3</td>
</tr>
<tr>
<td>GRP-214</td>
<td>Industrialization and Regional Development</td>
<td>3</td>
</tr>
<tr>
<td>GRP-215</td>
<td>Applied Climatology</td>
<td>3</td>
</tr>
<tr>
<td>GRP-216</td>
<td>Critical Cartography</td>
<td>3</td>
</tr>
<tr>
<td>GRP-217</td>
<td>Disaster Management</td>
<td>3</td>
</tr>
<tr>
<td>GRP-218</td>
<td>Gender Geography</td>
<td>3</td>
</tr>
<tr>
<td>GRP-219</td>
<td>Geography of Human Resource Development</td>
<td>3</td>
</tr>
<tr>
<td>GRP-220</td>
<td>Geo-politics</td>
<td>3</td>
</tr>
<tr>
<td>GRP-221</td>
<td>Agricultural Geography and Rural Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>
Banaras Hindu University
Institute of Science, Department of Geography
Ph.D. Two-Semester Course Outline, 2019-20

Semester-I
GRP-101: Theory
Orientation in Geographical Research

Credits: 4
Number of Lectures: 48

UNIT I
Theoretical base: Importance of research; Nature and trends of geographical research; Quantitative and Qualitative Research; Case study; Identification of variables and indicators; Ethnography, Participatory field techniques; Pilot study;

UNIT II
Fieldwork techniques and tools: Field as a laboratory of geography; Fieldwork and knowledge production; Types of sampling and delineation of sample size; Techniques of data collection: Interview and Observation; Questionnaire and schedule; Procedure of question construction;

UNIT III
Data handling: Remote sensing and GPS data; Categorization and tabulation of data; Data scaling; Data measurements: central tendency, correlation and dispersion; Data interpretation;

UNIT IV
Mapping process: Components of map: Title, scale, legend, latitudes & longitudes, north direction; Designing a map: Symbol, shade, pattern, colour, figure number, inset, map layout; Level identification methods: Ranking, variation from mean, standard value, Z-score, composite value; Index distribution methods; Use of GIS in mapping;

Books Recommended
Banaras Hindu University  
Institute of Science, Department of Geography  
Ph.D. Two-Semester Course Outline, 2019-20

Semester-I  
GRP-102: Practical  
Research tools and Techniques  

Credits: 3

UNIT I  
Research tools: Preparation of data collection instruments: Interview schedule/questionnaire; GPS;

UNIT II  
Research techniques: Data Processing through SPSS; Mapping technique in GIS environment: Scanning of map, geo-referencing, digitization, map creation, exporting;

Books Recommended

Semester-II
GRP-201: Theory
Data Analysis and Synthesis

Credits: 2
Number of Lectures: 48

Unit-I
Conceptualizing research: Conceptualizing research problem; Criteria for selection of the study area; Purpose and procedure of literature review; Identification of research gap; Selection of topic;

Unit-II
Research design: Hypothesis: Types, characteristics, construction and testing; Significance tests: Chi squre test and t-test; Formulation of research question; Framing objective; Methodology: Materials & methods of data collection, statistical measurements and data representation; Significance and further scope of research; Chapter scheme;

Unit-III
Data representation and report writing: Representation of data: Map (size, place and pattern), Diagrams, Graph, Tables and Text (font, style, size, spacing); Writing project report and research paper; Schemes of citation and referencing;

Unit-IV
Thesis writing and presentation: Components of thesis: Introductory documents; Contents; Observations & Discussion; Findings & Conclusion; References & bibliography; Supporting documents; Presentation of thesis (Pre-Ph.D Seminar): Framing slides; Inserting text, diagram, map, sound and video in slides;

Books Recommended
Semester-II
GRP-202: Practical Research Proposal

Credits: 2
Number of Lectures: 48

Unit-I
**Background aspects:** Designing cover page; Statement of the research problem; Theoretical framework; Selection of the study area; Review of literature;

Unit-II
**Basic aspects:** Objectives; Research Questions; Hypotheses; Methodology; Expected outcomes; Significance and further scope of the study; Chapter scheme; References;

**Note:** With the consultation of the supervisor, a research scholar has to prepare a research proposal as per above syllabi and present before concerned RPC to evaluate it for the semester examination. This proposal will also be submitted by the research scholar to the DRC for consideration and approval for further research.

**Books Recommended**

Semester-II
GRP-203: Theory (optional)
Applied Geomorphology

Credits: 3
Number of Lectures: 36

Unit I
A critical analysis of fundamental concepts; Concept of Dynamic Equilibrium versus Davis’ and Penck’s concepts; Time, Space and Causality in Geomorphology; Recent Trends in Geomorphology;

Unit II
Climatic Geomorphology; Environmental Geomorphology; Mapping Techniques in Geomorphology; Systems in Geomorphology; Models in Geomorphology;

Unit III
Geomorphology and Economic Deposits; Geomorphology in Ground water studies; Geomorphology in Soil Studies and Mapping; Geomorphology in Engineering Construction; Alluvial Fans and Flood Plains—their morphology, materials and Processes;

Suggested Readings
Banaras Hindu University  
Institute of Science, Department of Geography  
Ph.D. Two-Semester Course Outline, 2019-20

Semester-II  
GRP-204: Theory (optional)  
Applied Hydrology  
Credits: 3  
Number of Lectures: 48

Unit I  
Hydrology as emerging discipline of earth science, hydrological cycle, man’s intervention in hydrological cycle, major components of hydrological cycle: precipitation, evapotranspiration, infiltration, surface and ground water runoff;

Unit II  
Hydrograph: components and separation, unit hydrograph, estimation of evapotranspiration, river basin/water shed as planning unit for integrated water resource development and management, conservation of water resources;

Unit III  
Water crisis in India, water resource management in India with special reference to irrigation for food security, problems associated with water: droughts and floods in India, water balance graph and its application with special reference to seasonal crop management;

Suggested Readings

Banaras Hindu University
Institute of Science, Department of Geography
Ph.D. Two-Semester Course Outline, 2019-20

Semester-II
GRP-205: Theory (optional)
Environmental Planning and Management

Credits: 3
Number of Lectures: 48

Unit I
Introduction: Meaning and Concept of Environment, Pollution, Types of Pollution and Environmental Degradation; Environmental Quality Indices: Air, Water, Soil, Noise and Solid Waste; Environmental Management: Meaning, Concept and Approaches;

Unit II
Environmental Problems: Environmental Problems at Global, National and Regional level: Air Pollution and Global Climatic Change, Water Pollution and its Crisis, Land Degradation and Biodiversity, Natural Hazard and Mapping; Human Response and Attitude towards Environmental Problems; Environmental Quality and Health;

Unit III

Suggested Readings
Banaras Hindu University
Institute of Science, Department of Geography
Ph.D. Two-Semester Course Outline, 2019-20

Semester-II
GRP-206: Theory (optional)
Remote Sensing & GIS in Geographical Research

Credits: 3
Number of lectures: 36

Unit I
Nature of Geographical Data; Conventional methods of geographical data collection vis-à-vis remote sensing and GIS; Some aspects of geodesy of earth and their implications in GIS; Spectra of common natural objects; Mechanism of remote sensing data acquisition;

Unit II
Models of geographic data representation in GIS; Spatial Data quality and error analysis; Conceptual and Logical Data Modelling; Some important characteristics of Remote Sensing Data; Nature of image patterns and their interpretation;

Unit III
DEM and Derivatives; GIS as spatial decision support system; Information extraction procedures from remote sensing data—manual and digital; Application of remote sensing and GIS in Land use, hydro-geomorphological and integrated rural and urban development studies;

Suggested Readings
Banaras Hindu University
Institute of Science, Department of Geography
Ph.D. Two-Semester Course Outline, 2019-20

Semester-II
GRP-207: Theory (optional)
Population Dynamics and Policies

Credits: 3
Number of lectures: 36

Unit I
Introduction and Conceptualization: Concept and Components of Population Dynamics; Distribution of Population; Population Growth: Trends and Theories; Mortality Patterns and Trends; HIV/AIDS Pandemic, Fertility: Trend, Patterns and Determinants; Migration: Trends and Patterns; Population and Resource Relationship; World Population: Major Issues for the 21st century;

Unit II

Unit III
Measures and Indices: Data Sources, Error & Adjustment; Measures of Population change (arithmetic, geometric and exponential) and distribution (density, population potential, Lorenze curve); Measures of Mortality: Adjusted and Unadjusted and Life-table); Measures of period and Cohort Fertility, Measures and Models of Migration (indirect estimation of internal migration and Ravenstein’s law, Zipf’s gravity, Todaro’s rural-urban); Population Estimates and Projections;

Suggested Readings
Semester-II
GRP-208: Theory (optional)
Health, Space and Ecology

 Credits: 3
Number of lectures: 36

UNIT I
Concept of mortality, morbidity and health; Political economy of health; Colonial and Postcolonial conception of health and medicine; Health as a commodity; Health and Quality of life; Social capital approach to health-care; Market, State and Social Opportunity; Linkage between health and ecology; Political ecology of disease; scope of Political Ecology of Disease;

UNIT II
Pattern of morbidity- world, and India; Geographical aspect of distribution of major diseases in India- communicable and non-communicable; Regional variation in Prevalence of diseases; sources of infection, modes of transmission and creation of Disease Network and the correlates; Spatial epidemiology; Disease Mapping; Geo-statistical methods of Health issues;

UNIT III
Structure of health care services in India; Health inequality; Problem of access and utilisation; Investment in Health; Public and Private Initiatives in health-care provisions; Health Policy in Pre-independent India; Health Policies and Programmes in independent India; Nongovernmental initiatives and case studies of these initiatives like, Khanna, Matlab;

Suggested Readings
Semester-II
GRP-209: Theory (optional)
Rural Planning and Development

Credits: 3
Number of lectures: 36

UNIT I
Rural communities; Rural space, society, and rurality; Governance and globalization; Revisiting landownership and property rights; Theories and Models of rural settlement and its diffusion;

UNIT II
Theorization of culture, politics, space and poverty in rural contexts; Rise of productivist farming ways of conceptualising agricultural change; Institutional-strengthening issues; Rural future and globalisation; Food supply and food security; Challenges of sustainability;

UNIT III
Indian Scenario: Indian Village: Concept, attributes, and historical context and multiplicity; Regional morphological characteristics; Morphological interaction models: Religio-ritual, Secular-economic, Rural Housing and Architecture Rural-urban linkages: Peri-urban interface; Role of service centres; Transformation and Planning of Indian village: models and plans;

Suggested Readings
Banaras Hindu University  
Institute of Science, Department of Geography  
Ph.D. Two-Semester Course Outline, 2019-20

Semester-II  
GRP-210: Theory (optional)  
Urban Planning and Governance  

Credits: 3  
Number of lectures: 36

Unit I  
Conceptual Issues in Urban Studies:  
Urbanisation in space and time; Theories and Approaches of urban studies: locational, regional, spatio-structural, eco system and environmental perception; Dimensions of urban studies in India: geographical and non geographical; problem, policy, sand evaluation oriented;

Unit II  
Urban Issues and Challenges:  
Contemporary issues: slums and crime; urban environment: air, water, sanitation, solid waste.

Unit III  
Urban Management and Governance:  
Urban planning: Governance and Management; Urban development policies; Implications of 74th CAA on urban governance; Future governance structure PPP, capacity building for better service delivery.

Suggested Readings
Semester-II

GRP-211: Theory (optional)
Peri-Urban Interface and its Dynamics

Credits: 3
Number of lectures: 36

Unit I
Theoretical Base: Evolution of the PUls; Basic concepts: urban, rural, urbanization, urban growth, urban sprawl, spatial hybridization, etc.; Typology and processes; PUI Studies: major trends and emerging issues; Methodologies and techniques: qualitative, quantitative, and GIS & Remote Sensing; Approaches: descriptive, explanatory, normative, critical, participatory, and predictive;

Unit II
Application: PUIs and their characteristics: developed vs. developing world; Migration, urbanization and peri-urbanization; Production systems in the PUIs; the PUI impacts land use, biodiversity, environment, agriculture, resources, livelihood, and infrastructure and conflicts; Challenges: management, planning, and sustainability;

Unit III
Indian Scenario: Metropolization and Peri-Urban growth; Metropolitan growth: regional comparison; Impacts in PUIs: Land use, environmental, resources livelihood, infrastructure; Peri-urban governance; Case studies: Delhi, Chennai, Varanasi;

Suggested Readings
Banaras Hindu University  
Institute of Science, Department of Geography  
Ph.D. Two-Semester Course Outline, 2019-20

Semester-II  
GRP-212: Theory (optional)  
Globalisation and Regional Development  

Credits: 3  
Number of Lectures: 36

UNIT I  
Conceptual Issues: Process of globalisation; Impact of Globalisation in different sphere of economic and political life; Changing paradigm of Planning in Post-globalised era; Changing Nature of State Intervention and Process of Regional Development; Natural, Economic and Planning Regions; Aspects of Concentration and Dispersal of economic activities Polarization and Spread.; Multiplier Effect in Spatial terms; Regional variation in productivity of capital and labour; Diversity and Disparity;

UNIT II  

UNIT III  
Measurement of Developmental Processes and Examples: Dimensions, Variables and Indicators; Choice of indicators; Alternative approaches of compositing of different indicators: Principal Component Analysis; Gravity Model; Simulations; Input-output Model; Regionalisation – Clustering; Process of Economic Concentration and Relocation - China, Venezuela, India; Problem Regions- Eastern UP, Bundelkhand; Regional policy of Balanced development;

Suggested Readings
8. Datta, B. 1997. Indian Planning at Crossroad, OUP
15. Ray Choudhary, J 2001. An Introduction to Development and Regional planning, Orient Longman
Semester-II
GRP-213: Theory (optional)
Heritage conservation and Tourism

Credits: 3
Number of lectures: 36

Unit I
Development of the Geography of Tourism and Heritage; Basic concepts: Tourism Studies: Concepts and Principles; Methodologies and Approaches;

Unit II
Geography of Tourism: National, Regional and Global scenarios; Alternative tourism and Prospects: Ecotourism, Sustainable tourism, Heritage Tourism; Tourism Management, heritage issues and prospects: policy and planning - global, and national;

Unit III
INDIAN SCENARIO:- Tourism and Heritage resources, Tourism as industry and economy: national, state and local contexts; Heritage Planning and Master Plan, Varanasi: Heritage Zoning, identification and planning,s Types of tourism: domestic, international, local, pilgrimages; Tourism policies, perspectives, and plans;

Suggested Readings
Semester-II
GRP-214: Theory (optional)
Industrialization and Regional Development

Credits: 3
Number of lectures: 36

Unit I
**Concepts and theories:** Meaning of industrialization; Processes of industrialization; Structuralist view, Neo-classical view, Radical view; Theories of industrial location- Weber, Smith and Allen Pred; Industrial linkages, Role of industries in regional development;

Unit II
**Techniques of spatial and structural analysis:** Indicators of industrialization; Location Quotient, Localization Coefficient and Localization Curve; Regional specialization and Diversification; Level of industrialization;

Unit III
**Industrialization in India:** Evolution and growth of industries; Industrial regions and complexes; Factors and trend of regional diversification, Industrial policies, Rural industrialization, Industries and environmental degradation;

**Suggested Readings**
Semester-II  
GRP-215: Theory (optional)  
Applied Climatology  

Credits: 3  
Number of lectures: 36  

Unit I  
Meaning and Scope of Climatology, Difference between weather and climate, climatology and meteorology, elements of weather and climate, Temperature: Their distribution and controlling factors, laws of horizontal motion of air and general atmospheric circulation;  

Unit II  
Monsoon, jet streams and their significance with reference to India, precipitation: spatiotemporal variation and distribution in India, Tropical Cyclone: origin and associated weather, cyclone prone areas in India, climatic classification: Koppen and Thorthwaite;  

Unit III  
Water balance parameters and their use in climatic classification, seasonal computation of aridity, humidity and moisture indices and their application in crop and irrigation management, agro-climatic regions of India: delineation and characteristics, climatic change: evidences and theories, global warming: causes and consequences;  

Suggested Readings  
Semester-II
GRP-216: Theory (optional)
Critical Cartography

Credit: 3
Number of lecture: 36

Unit I
**Theories of Cartography:** Theories of representation- Naturalism vs. Anti naturalism; Map: meaning and functions; Cartographic traditions: empirical- positivist; humanistic and poststructuralist.

Unit II
**Map and Power:** Visual language and power of maps; Map contents and transaction of power; Maps and representation of hierarchies; Cartographic symbolism of power; Ideology of cartographic decoration; Maps and empires; Maps, nation and nationalism; Maps and war; Maps and National Security; Access to maps.

Unit III
**Mapping Spatiality of difference and exclusion:** Class; Caste; Gender; Language; Religion and disabilities.

**Suggested Readings**
Semester-II
GRP-217: Theory (optional)
Disaster Management

Credits: 3
Number of lectures: 36

Unit I
Basics: Concepts: Hazard, disaster, vulnerability, adaptation, disaster prevention, mitigation, preparedness, response and recovery, disaster syndrome, disaster risk reduction; Classification of disasters; Disaster and Development;

Unit II
Geography of hazards and Disasters: Floods, River bank erosion, Urban floods, Droughts, Fires, Cyclones, Heat and cold waves, Climate change and natural hazards; Disaster and human security;

Unit III
Disaster Management: Mapping of hazards and vulnerabilities; Roles and responsibilities of Organizations: The United Nations, SAARC Disaster Management Centre; NDMA;

Suggested Readings
Unit-I
Introduction: Basic concepts: sex, gender, sexuality, power; Meaning and scope of gender geography; Feminism: First, Second and third wave feminism; Feminism in India; History of Indian women’s movement.

Unit-II
Gender and Space: Socio-spatial construction of gender: class, caste, religion, age; Everyday lives: Public/private spaces, gender in the city, gender and violence; Sexual harassment at the workplace; Legislative measures: Domestic violence Act, 2005; The protection of women against sexual harassment at Work Place Act, 2013; The Criminal Law (Amendment) Act, 2013; Vishaka Guidelines and Nirbhaya case.

Unit-III
Gender and Development: Women and NRM; Gender and works, Gender and migration; Approaches to women and development: WID, WAD and GAD

Suggested Readings
15. _feminist_geography.pdf
Semester-II
GRP-219: Theory (optional)
Geography of Human Resource Development

Credits: 3
Number of lectures: 36

Unit I

Unit II
Concepts and Methods in studying Human Resource Development; Human Resource Development Indicators relating to Literacy, education, health, disease, food and nutrition, etc.; Types and sources of human resource development data; Managing human resource development data and devising indices; Concept and Computation of HRD or HDI; Amenities and Planning for human resources development;

Unit III
Problems of Human Resource Development; Spatial and Societal variation in human resource development; Human Resources in India: Potential, Utilized and Un-utilized; Development and Utilization of Primary, Secondary and Tertiary Human Resources in India; Deterioration and Conservation of Human Resources; Human Resources Development, Quality of life and Social well being;

Suggested Readings
Semester-II
GRP-220: Theory (optional)
Geopolitics

Credits: 3
Number of lectures: 36

Unit I
Basics: Meaning, scope and development of geopolitics; Relations of geopolitics with political geography and geo-economics; Basic concepts: Location and attributes, territoriality, power, identity, national interests, peace and conflicts; Geopolitical analysis: geography, culture and history, national needs and expectation,

Unit II
Thinkers and Schools: Geopolitical ideas of H.J. Mackinder, Nicholas J. Spykman, Alfred T. Mahan, Alexander deSeversky, K. Haushofer, S.B. Cohen; Colin S. Gray; School of geopolitics: French, German, British, American and Indian.

Unit III
Contemporary Issues: Geopolitics of energy, environment, water and sea routes; Reordering the world system, Geopolitics of West Asia, South China Sea, Indian Ocean

Suggested Readings

Semester-II
GRP-221: Theory (optional)
Agriculture Geography and Rural Development

CREDITS: 3
Number of Lectures: 36

Unit I
Concept, approach and methodology of agricultural geography; Agricultural land-use and carrying capacity; Measures of agricultural efficiency and agricultural productivity. Agroclimatic regions of India, Green revolution in India; Second generation reforms in Indian agriculture, Agricultural planning and policies in India.

Unit II
Concept and approach of rural development: Five Year Plans and rural development in India; rural development policies and programmes: Integrated area development and rural development programmes; rural development planning: problem, policy and target group oriented approach.

Unit III
Rural development and poverty amelioration in India; Five Year Plans and poverty removal strategy and planning; poverty and rural development target groups and planning in India; policy, programme and implementation at the local level planning/micro level planning; People’s participation in rural development and planning; role of Panchayati Raj.

Suggested Readings